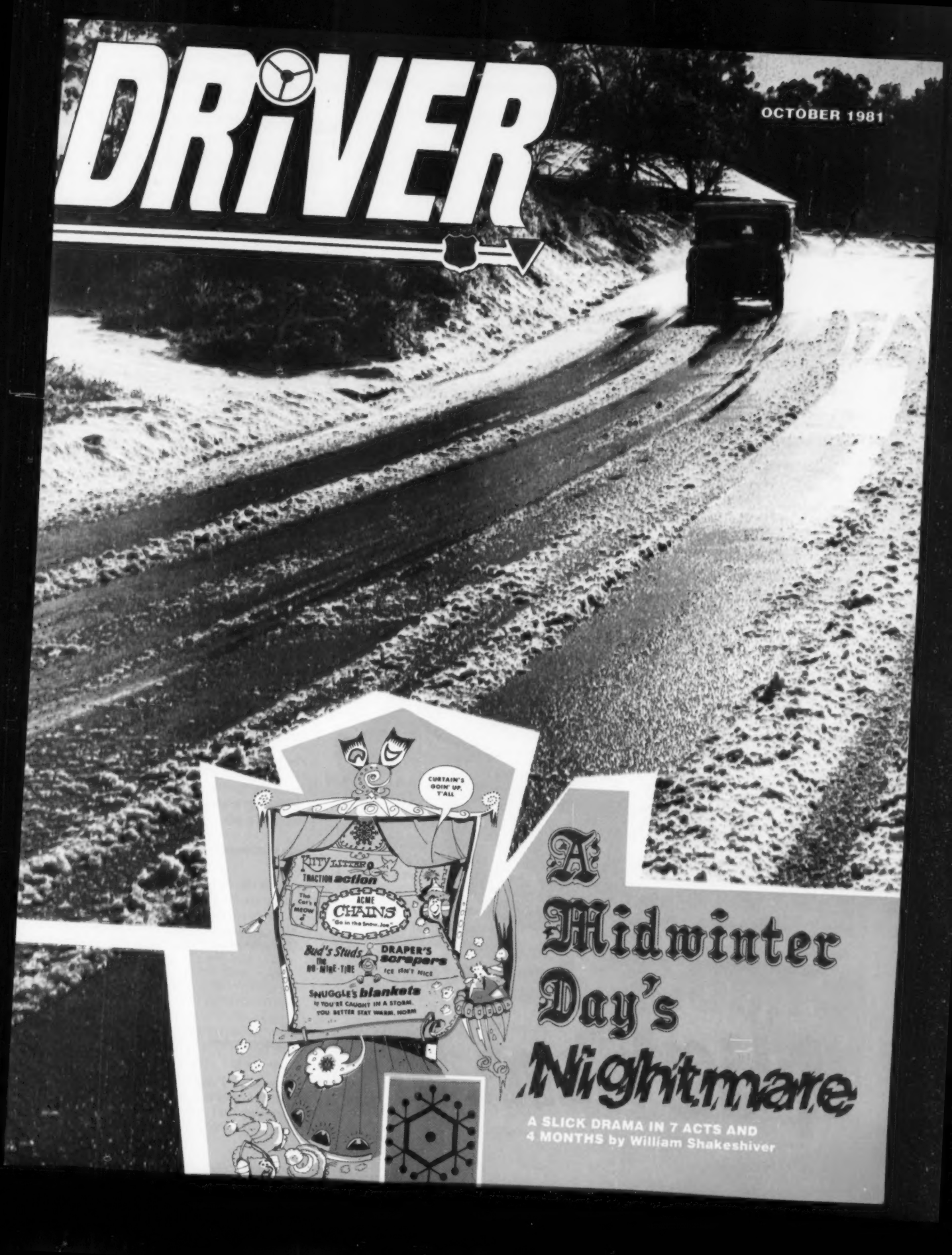
DRIVER

OCTOBER 1981



A Midwinter Day's Nightmare

A SLICK DRAMA IN 7 ACTS AND 4 MONTHS by William Shakeshiver

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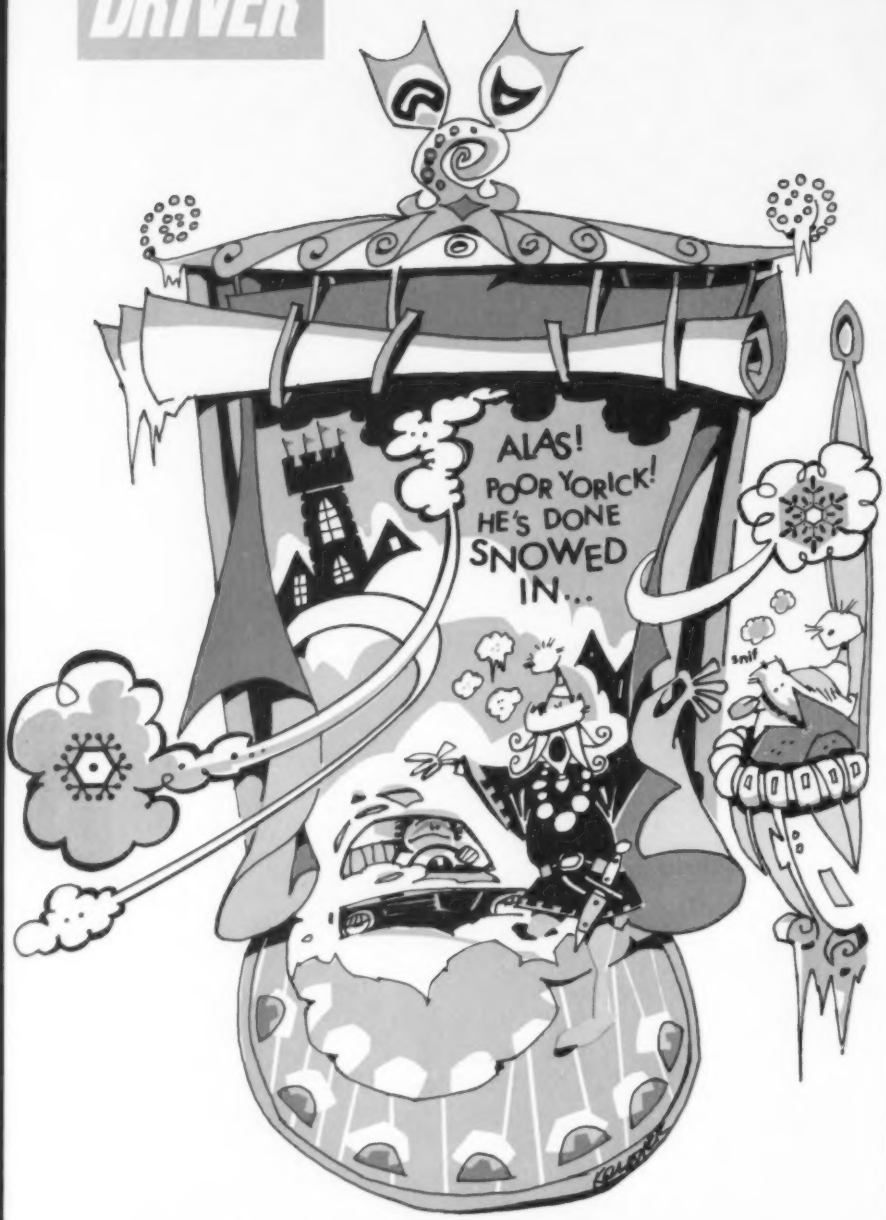

a midwinter day's Nightmare

Scene I: *You leave your house, bundled in a heavy coat that you wish were longer, because the wind is cutting right through your pant legs. The cold metal of your car door's hinge complains as you wrench it open. You brush the snow off the windshield with your hands, soaking your gloves, and then you use the ice scraper to remove some ice from the glass in front of the driving position. You turn the key and hear only a quiet clicking from under the hood, a sound that slows and then stops altogether.*

Scene II: *Your neighbor's jumper cables have successfully started the car and you are on your way to work. After each stop you press hard on the gas pedal and the speedometer hits 20 mph or so before the car moves. You reach the first hill and start up, wheels spinning as they lose traction. Your car moves more and more slowly, even though you press harder on the gas pedal. Finally, forward motion stops as the car slides sideways over to the curb and is stuck there. You look in the trunk for a bag of sand and find the trunk is empty.*

Scene III: *After some of the other stuck motorists help push you out and you somehow make it to the top of the hill, you change your route to work. It is a longer way, but with hills that are less steep. You are angry at the car and you are worried about being late to work. You speed up and try to make up for lost time. As you approach a stop sign, you apply the brakes too late and slide into the intersection, narrowly missing another car.*

Scene IV: *You are shaken by the close call at the intersection, and still nervous about being late. Your car hits a patch of ice hidden by the snow and slush, and it begins to fishtail. You stomp on the brakes and the car nearly does a 180-degree turn before it stops. It is only luck that you are in your own lane of traffic, with no other cars nearby.*

Scene V: *You are so late you have to park in an overflow parking lot at work, knowing that you won't be able to get out after work without a shovel. The*

snow is still falling and cars parked only minutes before now have drifts up to the bumpers.

Scene VI: *You are forced to work late to make up for arriving late at the office. When you reach the parking lot, everyone else has gone home, and they have thrown their snow over on your car in their efforts to get out. When you finally uncover the car, again soaking your gloves and coat, you find that the battery won't generate any noise at all, not even a single click. You get out quickly, but see only the taillights of your boss's car as it drives away in the distance. The snow is already coating your shoulders and your hat. . . .*

That fictional story is an example of Murphy's law — "If something can go wrong, it will." But most of that hassle could have been avoided, and our purpose is to help you avoid such trouble. We'll refer back to those scenes to tell you what you can do to prevent similar experiences.

Pre-freeze preparation: In Scene I, the mistake was a lack of preparation for winter, and preparation is at least half the battle in the cold-weather months. So roll up your sleeves, while it's still warm enough to roll them up, and get busy.

A good place to start is under the car. Check your exhaust system — manifolds, tailpipes, muffler and catalytic converter — carefully for leaks or rusty spots that may soon become leaks. This is very important because automobile exhaust contains carbon monoxide, a colorless, odorless gas that is deadly. Have any leaking or rusted components of the system replaced immediately.

While the car is on the hoist, check all four brakes for wear. Replace pads or linings that are worn too thin. Also, give the car a lube, if it's due for one.

Have the front end alignment checked over at your favorite service station. Ruts, potholes and built-up ice and snow could spoil the alignment through the winter months, and that could be expensive if it makes your tires wear unevenly. More on tires later.

When your car skids on ice or snow, steer into the skid. If the car's rear end slides to the right, steer to the right.

If it slides to the left, steer to the left.

Slow down in advance of corners, long before you would begin to slow on dry roads. If you turn at too high a speed, you could lose control and move into oncoming traffic

(USAF photo by SSgt Alan R. Koester)

The next thing to look at is the cooling system. "Cooling" may not seem like a big concern in winter, but the same system that keeps it cool in summer keeps it from freezing in winter. Check the radiator and all the hoses for leaks, and repair or replace, as necessary.

While you're thinking of the cooling system, check the coolant. This liquid, also called anti-freeze, not only keeps your car from freezing up (or boiling over) but it also keeps the radiator from rusting. So if it's more than a year old, drain it and replace it with the proper mix of coolant and

continued

Be especially careful of children sledding or playing in the snow. They often don't watch for you.

(USAF photo by SSgt Alan R. Koester)

DRIVER

THE
TRAFFIC SAFETY MAGAZINE
FOR THE MILITARY DRIVER

DEPARTMENT OF THE AIR FORCE
HQ AIR FORCE INSPECTION AND SAFETY CENTER
Norton Air Force Base, California 92409

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WITH
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AND
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AFRP 127-1

Entered as a publication at the Second-Class rate (USPS No. 586-430) at San Bernardino Postal Service, 1331 South E Street, San Bernardino, CA 92403.

Authority to publish this periodical automatically expires on 29 January 1982 unless its continuance is authorized by the approving authority prior to that date.

SUBSCRIPTION — DRIVER is published monthly and is available on subscription for $13.00 per year domestic ($2.25 per copy); $16.25 per year for foreign mailing ($2.85 per copy), through the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402. Back issues are not available. Changes in subscription mailings should be sent to the above address. Use of funds for printing this publication has been approved by Headquarters, United States Air Force, Department of Defense, Washington, D.C. No payment can be made for manuscripts submitted for publication. Contributions are welcomed, as are comments and criticism. Address all correspondence to the Editor, DRIVER Magazine, HQ AFISC/SEDD, Norton AFB, CA 92409.

Distribution: One copy for every 9 members of USAF.

ATTENTION DEPT OF THE NAVY PERSONNEL: Address all queries concerning distribution to NAVSAFECEN, NAS NORFOLK, VA 23511, Attn: Safety Publications Dept. All other correspondence will be welcomed by the Editor.

The purpose of this magazine is the prevention of vehicle accidents, and the contents are not directive unless so stated. Address reprint requests, stating intended use of material, to the Editor. The Editor reserves the right to make any editorial changes in manuscripts which will improve the material without altering the intended meaning.

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VOLUME 15 NUMBER 5

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THE EDITOR SPEAKS

DOUBLE CLUTCH

WHATEVER HAPPENED TO THE RSV? About five years ago, we wrote an article about a Research Safety Vehicle being built under government contract by Minicars, Inc. We were fascinated by the car, with its gull-wing doors and its flexible plastic body skin that was not only impervious to nicks and dents but also provided a gentle landing zone for unlucky pedestrians.

Perhaps most interesting were the structural members, which provided strong support and great collision-impact absorption because they were hollow sheetmetal boxes into which plastic foam had been injected. Numerous test crashes had proved the car could slam head-on into a concrete wall at 50 mph and permit its occupants to walk away unscratched.

During the next few years the RSV toured the country, had its picture on TV, and enjoyed a lot of attention. Surveys showed about 30,000 of the cars could be sold annually. (When we did our story in 1976 the unit cost was estimated at $3500 — now the low figure we hear is $9500.)

But the RSV seemed to fade from public view. This week we came across the reason. The Secretary of Transportation says if an auto company actually built the RSV, introducing such a safe vehicle would make a shambles of product liability law for the entire auto industry. The theory is that if one car company sold the RSV, other manufacturers who did not offer a vehicle as safe could be sued by crash victims hurt in their less-safe cars on the grounds that they failed to offer a "state-of-the-art" product.

The Los Angeles *Times* asked a prominent product liability attorney if this could happen and he said it was certainly a possibility.

Would you believe a little company selling 30,000 cars a year could force the big manufacturers to change all their safety engineering? Considering that the American car companies have just spent about $80 billion redesigning and retooling for fuel economy, it looks like there will be little or no investments for "safety" other than add-ons the rest of this century.

a midwinter day's nightmare

continued

water. The container will tell you the correct ratio.

Charge! Next, check the battery. That was the main problem in Scene I of our nightmare. Extreme cold is an enemy of even the best battery, and a weak battery will give up entirely if the temperature falls too far. Check the electrolyte level in the battery cells. Fill up to the marks if the electrolyte is low. If you've been having starting difficulties, the battery may be weak. Have it charged, if it will hold a charge. Otherwise replace it with a new one. If the battery is in the final three months of its warranty, replace it now rather than risk an experience like Scene I.

Test your heater and defroster to make sure they won't give any trouble when you really need them.

A tune-up will contribute to easier starts and smoother running. If it has been longer than six months since the last tune-up, buy some spark plugs and a tune-up kit.

Another thing that will help in the winter is an oil change. The oil that works well in the summer might really gum up the works in the winter. For winter, you need a lighter weight oil that won't be too thick when it's cold. See our chart for the proper oil for your winter temperature range. Even if you have the right grade in the car, change the oil if it's been there for six months. Change the oil filter every time you change oil.

Speaking of filters, check all the engine filters, including the air filter. Replace any that aren't doing their job.

Next, examine all the fluids in the engine — the brake fluid, the automatic transmission fluid, the power steering fluid and the windshield washer solution. It's easier now while the weather is pleasant.

continued

Lowest Atmospheric Temperature Expected	Single Viscosity Oils	Multi-Viscosity Oils
32° F	20, 20W	10W-30, 10W-40
0° F	20W	10W-30, 10W-40
Below 0° F	5W*	5W-20, 5W-30

*SAE 5W single-viscosity oils should not be used for sustained high-speed driving (above 55 mph).

continued

It's a nasty, cold chore, but shoveling out your driveway in the morning will make it easier for you to get back in when you return.

Finally, look at the windshield wipers. Make sure the tension is correct to clear off the windshield, and that the blades are in good condition. Replace the blades if they are cracked or brittle.

Properly at-tired: Once all that is taken care of, all you need for a proper winter vehicle are the proper tires. Check Scene II of our nightmare. The wrong tires created that situation, at least in part.

Too many people think they can drive through winter on the same tires that they used in the summer. They are the ones you see stranded on the hill. Snow tires would keep them out of that predicament.

The tread on tires is for wet weather. It provides a channel for water to run through. The more tread, the more traction. Obviously, what is acceptable for rain is inadequate for snow.

For snow, you need the deeper, more aggressive tread of snow tires. They dig in and give you the traction you need for easy starts and stops. A couple of snow tires will set you back a few bucks, true, but they will last for years with proper care. For the convenience and the safety they provide, they are a very good investment.

A couple of hints: If your car has radial tires, buy radial snow tires. If you have bias-ply tires, buy bias-ply snow tires. A mix of bias and radials will cause car-handling problems. Also, put the snow tires on the drive wheels — that is, on the front if you have a front-wheel-drive car, and on the rear for conventional rear-wheel-drive.

Metal studs in snow tires are allowed in some states and outlawed in others because of the damage they cause to highways. See our chart for the state laws. The so-called "soft studs" are allowed in some places where the metal ones are illegal. Be especially careful of these laws if you intend to do any interstate travel in the winter.

Several tire companies offer what they call "all-weather" tires. These are designed to work well on all surfaces — mud, rain, snow or dry pavement. These will be acceptable for some areas, but if your area gets a lot of snow we suggest that you buy snow tires.

There's one way out if you don't want to part with that much money — tire chains. Chains actually give you the best traction available, even better than snow tires. But they can be a hassle if you have to apply them and remove them several times a day because of changing weather. Of course, you know best how much hassle you can stand, so make your own choice.

One final word on tires: There's a very popular idea that letting some air out of your tires will give you better traction. The people who use that technique are trying to avoid paying the money for an extra set of tires. The idea is not only false, it's foolish, because their tires will wear out faster, and underinflated tires cause your car to use more gas. It's better to buy snow tires, which will last for several winters, than to destroy a regular set of tires by running them low on air.

This information regarding the use of studded tires was taken from a special notice issued by the American Automobile Association. Dates refer to time periods during which studs may be used.

Alabama — No restrictions
Alaska — September 15 — May 1
Arizona — October 1 — May 1
Arkansas — November 15 — April 15
California — October 1 — May 1
Colorado — No restrictions
Connecticut — November 15 — April 1
Delaware — October 15 — April 15
District of Columbia — October 15 — April 15
Florida — Generally prohibited, but studs that will not damage the highway may be used.
Georgia — No restrictions
Hawaii — Prohibited
Idaho — October 1 — April 15
Illinois — Prohibited
Indiana — October 1 — May 1
Iowa — November 1 — April 1
Kansas — November 1 — April 15
Kentucky — No restrictions
Louisiana — Prohibited
Maine — October 1 — April 30
Maryland — October 15 — April 15
Massachusetts — November 2 — April 30
Michigan — State-approved "soft studs" permitted November 15 — April 1; northern regions permitted October 1 — May 1
Minnesota — Prohibited, except out-of-state vehicles may use studded tires for 30 days
Mississippi — Prohibited
Missouri — November 1 — March 31
Montana — October 1 — May 31
Nebraska — October 1 — April 15
Nevada — October 1 — April 30
New Hampshire — No restrictions
New Jersey — November 15 — April 1
New Mexico — Permitted only when required for safety and stopping purposes
New York — October 16 — April 30
North Carolina — No restrictions

This is how many people try to get their cars to move — by revving the engine and spinning the wheels. Actually, this does a better job of polishing the ice and wasting gasoline. A slow, cautious start will work much better.

Frozen tools and oil: Where do the chains go when the sun comes out? In the trunk, of course. There are a lot of other items that go in there, too.

Some of these are the usual list of tools and spares:

- **A couple of adjustable wrenches**
- **A set of combination wrenches (box-end and open-end)**
- **Assorted size screwdrivers (standard and Phillips)**
- **Pliers**
- **Duct tape**
- **Medium gauge wire**
- **A couple of cans of oil**
- **Spare fluids**
- **Spare bulbs**
- **Jack and lug wrench**
- **Spare tire**
- **Flares (or warning triangles)**
- **Extra fanbelt**
- **A flashlight and batteries**
- **Jumper cables**
- **Work gloves**
- **First aid kit**

The other items are special ones for winter. The first is the ice scraper. You need one of these if you intend to see out of your car. The best kind is the one with the wooden handle and the brush on the other end. You can use the brush to get all the snow off the top, hood and trunk of the car. Come to think of it, keep the scraper in the car with you.

Another thing to keep in the car with you is a blanket, just in case you get stranded and have to wait for help. If the blanket is in the back seat it will be warm, but in the trunk it might be frozen.

The final thing for the trunk is something for traction. Scene II showed how handy this can be. You might want to have a small bag of salt or sand for this purpose. Keep it small, though. If you have a large bag in the trunk, the extra weight could cause car handling problems.

We have a better idea that may sound strange. Use a bag of kitty litter. This stuff will give excellent traction, it's lightweight, and it's easy to clean up if you spill it. You can't say that last thing about sand or salt. Perhaps best of all, kitty litter is inexpensive.

Plowing and scraping: If you've followed our instructions this far, you've eliminated the causes of some of the nightmare. However, look back and you'll see we haven't reached the driving part — a real nightmare in winter.

One preliminary to driving — perhaps more of a headache than a nightmare — is cleaning the snow off the car. With each succeeding snow through the winter, the stuff loses a little more of its charm and you lose your inclination to brush it off. But remember the other drivers. If you leave the snow on your car's top, it blows off as you drive, creating an annoyance and possibly a hazard for other motorists.

Scraping off the windows is another chore that gets less interesting as the winter goes on. But ice on the windows creates a hazard for *you*. You must be able to see in all directions to drive safely.

It's also wise, though not fun, to get up a little earlier to shovel out your driveway. This will make it easier to get out, and to get back in at the end of the day.

continued

North Dakota — October 15 — April 15
Ohio — November 1 — April 15
Oklahoma — November 1 — April 1
Oregon — November 1 — April 30
Pennsylvania — Prohibited
Rhode Island — Prohibited
South Carolina — No restrictions
South Dakota — No restrictions
Tennessee — No restrictions
Texas — Metal-studded tires are prohibited; rubber studs are permitted
Utah — Only tungsten carbide soft studs permitted October 15 — March 31
Vermont — No restrictions
Virginia — October 15 — April 15
Washington — November 1 — April 1
West Virginia — November 1 — April 15
Wisconsin — Prohibited, except out-of-state vehicles may use studded tires for 30 days
Wyoming — No restrictions

CANADIAN PROVINCES

Alberta — No restrictions
British Columbia — October 1 — April 30
Manitoba — October 1 — April 30
New Brunswick — October 16 — April 30
Newfoundland — November 1 — April 30
Northwest Territories — No restrictions
Nova Scotia — October 15 — April 30
Ontario — Banned
Prince Edward Island — October 1 — May 31
Quebec — October 15 — May 1
Saskatchewan — No restrictions
Yukon Territory — No restrictions

Here's another job that is not a lot of fun, but necessary. Clean all the snow off the car and scrape all the windows. If you leave snow on the car, you've got more blind spots than you need. **(USAF photo by SSgt Dwight Williams)**

Snow tires have an aggressive tread that digs into the snow and slush for better traction. This one has metal studs, which are restricted in most states, and banned in a few others. Check our chart on page 4 for your state's law.

Intersections are even more dangerous in winter than they are the rest of the year. If you drive too fast on slick winter roads you could miss your stoplight and hit another car.

(Photo by Lt Robert Prucha)

The main event: Now at last we're ready to drive. The preparation mistakes in our nightmare were merely annoying. The driving mistakes were dangerous.

Back in Scene II, there was a driving technique used by far too many motorists in winter — flooring it. If they can't get moving, they think the answer must be more power. Of course, they're wrong.

No matter how good your snow tires, there will be surfaces that will be too slick for a quick take-off. Snow, slush and ice, especially on hills as in Scene II, will slow you down. The answer is not more power, the answer is skill. If you have to move slowly, so be it. Put only enough pressure on the gas pedal to get the car moving. Don't spin the wheels — that wastes gasoline and accomplishes little besides polishing the ice beneath your tires. Gradually increase the pressure on the gas pedal as you build up speed. But don't accelerate to the posted speed limit if the road is covered with snow. Posted speed limits are for the best conditions, and winter is not among the best conditions.

Since the conditions are so bad, you shouldn't get impatient or angry. That was the mistake in Scene III. Nothing can be done quickly in winter if you want to do it safely.

All driving maneuvers — stops, turns or lane changes — take more pre-thinking. That is, you should plan all your moves much in advance. You can't expect to roll along at 30 miles an hour and brake to a stop in the last

continued

If this car moves into the intersection, you won't have time to stop, and the water and slush will make avoiding an accident very difficult. Be alert for any driver who might try something dumb.

(USAF photo by SSgt Dwight Williams)

100 feet before a stoplight. Scene III showed that.

If you'll be turning at the next corner, or if you know the light will change before you get there, ease up on the accelerator. Begin your slowing far in advance of the point you would do so on a dry road. Apply the brakes smoothly and gradually. If you feel the road is so slick that your wheels are slipping, pump the brakes.

Pumping the brakes works like this: You apply the brakes enough so there is a drag on the wheels, then you take your foot off the pedal for a moment, then you apply them again. You keep this procedure up until you have slowed the car for whatever maneuver you're making.

You keep your distance: Your following distance is even more important in winter than it is in summer. The unsure surface beneath your wheels demands that you keep away from other drivers. You could lose control on the ice and hit someone else. Or you could be in complete control, but just a little too close to someone else when that person loses control. Keep well back from the traffic ahead. Also, keep your car centered in your lane. Those motorists on either side might not be so good at driving as you are.

Plan your driving to avoid as many trouble spots as possible, as in Scene III. Go around steep hills if you can. If you must take a hill, remember that your summer driving technique of "more gas" doesn't work so well in winter. Your car may slow down while going up a hill, but be very careful about giving it more power. If you have to press so hard on the gas pedal that your wheels spin, the hill was probably too steep for your car to take at the present weather conditions.

So the key to this kind of driving is caution. Slow starts, gradual acceleration, slow-to-moderate speeds, planning your moves far in advance, early and gradual slowing — all these will make winter driving easier and safer. It may not be exciting to drive this way, but it won't cause ulcers or gray hair, and it will help you avoid an accident that could make your day worse.

No skidding! Now look at Scene IV. That's the story of a wet winter skid. Scene IV talks about a patch of hidden ice, but a skid could result from too much speed on any winter surface, or from locking the brakes in a stop. The best thing is to avoid it in the first place. Slow down to a speed that seems safe, and then slow down some more and travel at that speed.

However, there are no guarantees. You might skid even at a slow speed. Here's how to handle a skid. First, stay calm. Second, ease your foot off the gas pedal. Don't stomp on the brakes. That could result in a worse skid. Next, steer into the skid. If your car's rear skids to the right, turn the front wheels to the right. If it skids left, steer left. Do this easily. Don't oversteer or you could make things worse. If you use the brakes, pump them, and do so lightly. If you steer into the skid and the car moves in the opposite direction (fishtails), steer that direction and continue to steer into each skid until you straighten out the car.

Since front-wheel-drive cars are engine-braked from the front, it's better to keep off the brakes. Steer into the skid, as we have explained. Take the car out of gear — carefully, so you don't shift into reverse — or press the accelerator enough to keep the front end ahead of the back end.

Pushing and shoveling: Even if the battery had worked in Scene VI, the motorist would have been stuck. Getting stuck in the snow is one of the most annoying winter experiences.

Whether it happens at an intersection or on a lonely road, or even in front of your house, you can often handle it by rocking the car. Put the car in gear and ease forward. Then shift into reverse and back up a little. Go back and forth until you get out. Be careful not to spin the tires. That could dig you in deeper, or make the ice and snow slicker.

If that doesn't work, get your shovel out of the trunk and dig around the wheels. Provide a gentle incline for the wheels to come out of the snow, both in front and behind. Once again, try rocking the car. Sprinkle a

continued

continued

little sand, or whatever traction agent you have, in front of and behind the wheels and try moving again, very slowly. If you forgot the sand, you might use your car's floor mats under the wheels for traction. Keep your wheels straight when you're trying to get out of snow. If they are turned, you might put yourself in deeper.

If anyone is trying to help push you out, be very careful of them. Once again, keep from spinning the wheels. The people trying to push could be injured by flying snow, sand, or even loosened tire studs.

The nightmare continues: If we had to sum up winter driving in two words, they would be *preparation* and *caution*. Call it "prepare and beware." Practicing those two methods could help you avoid something like the following.

Scene VII: *By the time you walk to a telephone to call for a tow, your hands and feet are so numb they ache. The truck arrives an hour later, delayed by the many calls from stranded motorists. He gives you a jump and then pulls your car out of the drift. You have to pay him cash so you have no money to buy a battery, even if the stores were still open, which they aren't. You drive up to your house nearly three hours late. You eat dinner and go to bed, but you are so tired you forget to set the alarm. . . .*

This may look like snow sculpture, or a do-it-yourself spoiler, but it's really a traffic hazard. It will blow off when the car moves, obscuring the vision of other drivers.

Drive cautiously when people are pushing you out of a snowdrift. Ice and snow kicked up by the wheels could injure them.

(USAF photo by Capt Dennis Pierson)

Tire chains are the things to carry if your area has infrequent, surprise snowstorms. Chains provide the best traction on snow and ice.

(USAF photo by TSgt Wayne W. Specht)

make it

Buckle Up!

This seat-belt-save message came to us from Vandenberg AFB in California as part of the "Make It Click" program:

"I have a survivor story to tell, not for myself but for my son. I think I can tell it better than he because he did not see his car after the accident — I did.

"After receiving the dreaded long distance phone call that my son had been in a serious automobile accident, I flew from California back to Nebraska on the first available flight. I went immediately to the intensive care unit of the hospital where my 19-year-old son was recovering from surgery to repair a ruptured liver, to insert a plate into the compound fracture of his arm, and to sew up some deep cuts in his leg.

"When I saw him I wanted to cry, to put my arms around him and assure him that everything was O.K. But I knew he was in pain, so I grasped his hand and whispered that I was there. The nurse assured me he was doing well, was stable and the prognosis was good. I looked at his face which had only small cuts, for which I was grateful. I had much to be thankful for when I left the hospital that night.

"The next morning I began the agonizing task of taking care of the car and beginning the insurance procedure. I went to the auto salvage company to see the car and pick up my son's personal belongings. When I saw the car I got a tremendous shock. It had been a 1980 Oldsmobile Cutlass; now it was a mass of torn metal. It had collided almost head-on with a large 18-wheeler and was unrecognizable as a car from the front seat forward. How could an individual survive such an accident?

"Later that day as I returned to visit my son, although he could not speak well, he told me some of the details of the accident. One of the things he told me was that he was wearing his seat belt and shoulder harness. I am firmly convinced the restraining device, often the subject of much controversy, saved his life. I have my son with me because he had heeded all the fatherly "nagging" I had done and wore his seat belt. When I think of how close we came to losing him, I shudder. If I can convince just one person to use seat belts it would be worth writing a thousand such letters.

"There is a bizarre postscript to this survivor story. There was a car next to my son's in the salvage yard, not nearly as damaged, in fact almost no damage to the driver or passenger area. The lady in the passenger side was thrown from the vehicle and killed. She had not "made it click." Please parents, wear seat belts and train your children to do so."

awareness

by Dr. ANCHARD F. ZELLER
Directorate of Aerospace Safety

Here's a case where a driver might concentrate on one aspect of the driving environment to the exclusion of everything else!

(Photo by Ph1 Kirkham L. Schneider, Naval Air Facility, Sigonella Sicily, Italy)

A bicyclist was pedaling slowly across the parking lot, looking down at the pavement, obviously lost in his own thoughts. A small car with two young men inside quietly pulled up beside him and then eased closer and closer. When the car touched the bicycle, the cyclist suddenly became alert. As he recovered his balance the car sped off amid the laughter of the two young men. The bicyclist shouted after them, angry but unhurt. This clear example of irresponsibility fortunately did not end in a tragedy.

Not so fortunate was a young lady motorcyclist riding along the highway in the late evening hours. The motorcycle was in excellent condition and the highly experienced driver appeared in complete command of the situation. She was dressed in appropriate leather clothing and protective gear, driving well within the posted speed limit. For an unknown reason — perhaps just a whim — she pulled into the lane to her left. The driver of a car in that lane attempted to stop but was unable to do so. At contact her helmet fell off and she and the motorcycle tumbled 90 feet before stopping.

Certainly most drivers and riders have not suffered such traumatic experiences. Yet how many, moving along in a car, on a motorcycle or on a bicycle, have suddenly become aware that many miles and an undetermined amount of time have passed without any awareness of what has been going on around them? Whether it is the traumatic experience of the motorcyclist or the merely embarrassing situation of the bicyclist, the basic mechanism is the same. There was a time when situational awareness was totally lost.

This lack of awareness takes many forms: At one extreme it may be related to high motivation and a situation where the complexity of things to be done simply overwhelmed the individual. At the other extreme, motivation is so minimal and the challenge so insignificant that the individual becomes bored and complacent.

One of the most common forms of the first extreme, over-saturation, comes with an emergency and all the added requirements which this entails. Anything from a simple brake failure to an unusual traffic situation where many drivers are not behaving as expected can multiply the requirements to the point that an individual cannot divide his or her attention properly. A common response to such a situation is to over-concentrate on just one part of the situation and exclude other aspects of the situation. All too frequently the end result is an accident.

Another form of overconcentration is unrelated to what is going on around us but rather depends upon our own inner motivation to success. In flying, this form of over-concentration is frequently associated with attempts to acquire and hit a target, hence the common name "target fixation." This kind of overconcentration, however, is not restricted to the air. It can be just as strong on the ground when the motivation to achieve becomes so important that other aspects of the situation, even though highly important, are ignored.

In contrast to too much motivation, there is the situation in which rational, reasoned motivation is being exerted but for a variety of reasons there is a faulty division of attention. Unimportant details assume excessive importance while critical items are excluded from our attention.

Distractions may come from external sources or from internal. One of the most common external distractions is a real or perceived emergency which may result in an accident. This rightfully alerts the individual to a new series of circumstances to take into account, but it frequently results in neglect of other very real factors which must still be considered. The accident need not involve the individual concerned, however. There is nothing more interesting than someone else's difficulties. The gawkers on the highway, slowing down the flow of traffic while they look at someone else's accident, is a sight we have all seen. Nor does the situation have to be as critical as an accident. How often have you been inconvenienced by someone else looking for a turnoff, observing a newly plowed

field, or admiring a sunset while attempting to negotiate a vehicle on a public road?

Distractions may also come from a variety of internal causes. One of the most frequent of these is personal problems. Some people use driving or riding as an escape from problems. Others find movement through space an ideal situation for dealing with personal problems. Even the most immune are affected by the pressure of unresolved problems if the problem is sufficiently acute. The result is interference with appropriate attention to the details of the driving task. Everyone knows intuitively that strong emotions interfere with rational driving behavior.

Sometimes the problems are not really big. One has only to travel the freeways on a late afternoon before a holiday to see how frequently driving discipline is lost. Otherwise rational drivers, operating under the pressure to get away from the daily grind, take chances that they ordinarily would not and behave in ways that in their more calm moments they would consider irrational. This same goal orientation operates in coming home at the end of the holiday period. Here again, the longer term goal of getting home frequently overshadows the short term goal of driving in a sane and rational manner.

As previously mentioned, the end of the spectrum of attention is too little attention being directed to the task at hand. Because of complacency or boredom, individuals respond only automatically to the details of driving situations, allowing their active thought process to run in other directions. The young man on the bicycle was probably a good example of this. His thoughts were far away. He anticipated no dangers and only when rudely jarred back to reality did the importance of maintaining full situational awareness become real to him.

Complacency on particularly long, monotonous trips with a minimum of challenge leads to the almost hypnotic-like state commonly referred to as "highway hypnosis." The individual is lulled into a state of complacency where the most prominent thing in the field of vision is the center line of the highway. The sound of the motor provides a soothing lullaby and situational awareness erodes, sometimes to a dangerous point.

It is easy to identify with each and all of these situations, and the specific cause is frequently apparent in the details of the situation as it arises. There are, however, some general background causes which should be considered. It is probable that by basic temperament some people are more oriented towards alertness than others. It has been found, for example, that highly intelligent and educated people frequently have greater difficulty driving successfully than those with lesser endowments. The reason is closely associated with the attitude which they have toward the driving task. To them it represents only a time-consuming activity required to take them from one place to another where activities of greater interest can take place.

In other instances, lack of appropriate situational awareness is directly related to the training which the individual has received — training first in general driving ability and next in the specific details of appropriate consideration of the various elements of the driving task. Another facet of training all too frequently ignored is currentness. The individual who has learned to drive really never forgets the basic elements, but the procedural details are lost through the lack of practice. Long ago, some people who were concerned with how anything is learned arrived at the conclusion that *frequency* and *recency* are very critical elements in the learning process.

There are some other causes of a lack of situational awareness which need to be mentioned. One, which can occur to anyone, is illness. When someone doesn't feel well, it is awfully hard to pay attention to everything around. Misery has a way of constricting awareness and consciousness to the point that other things become relatively less important, and if the illness becomes sufficiently acute then situational awareness is reduced to almost nothing.

Closely related to illness is a temporary decrease in body efficiency associated with fatigue. While there are lots of studies of fatigue, the simple fact is that people get tired and when they are tired they don't do so well. If fatigue becomes excessive, the individual goes to sleep. Sleep, of course, is a complete lack of situational awareness. Before this, however, attention may become so channelized that normal attention and reaction are reduced to a barely acceptable minimum.

Still another form of self-imposed decrease in efficiency is that associated with the ingestion of various substances, the most common of which is alcohol. While drinking doesn't necessarily result in an accident, even minor amounts of alcohol are directly associated with decreases in visual acuity and reaction time, and with a general decrease in situational awareness. Closely related to the use of alcohol is the use of other drugs, both illicit and prescription, which all have in common a decrease in capability. While drugs may sometimes be required for bodily well-being, it is almost certain that the body functions best without any drugs and that the probability of situational awareness being maintained is greatest in a drug-free body.

Still another — and perhaps the most important — cause of a failure of situational awareness is that driving is a matter of attitude as much as it is of skill. After the mechanics of putting a vehicle in operation, the attitude with which the task is approached is a most critical element in success. If it is accepted that driving a vehicle of whatever kind is indeed a task worthy of effort and attention, then the probability of this being successfully accomplished is very high.

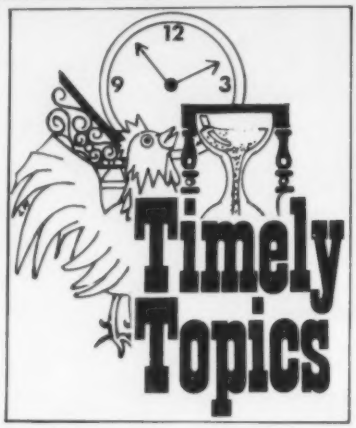
The methods for improving situational awareness are almost inherent in the explanation of its lack. Again, however, there are some general principles which are pertinent.

First, it is necessary to accept the driving task as an important function, one which should be done correctly. This must become a personal challenge.

Closely associated with the decision to do it right is a decision to do it safely. Contrary to some opinions, the practice of safety is not an activity for only the fainthearted. It is rather a guarantee of life for the virile, the strong and those imbued with the joy of living.

In this context, situational awareness becomes a direct method of maximizing chances of survival. In the final analysis, survival is the critical element.

Driving is one method of enhancing both efficient and pleasant living. Many untimely deaths are the direct result of a simple failure to maintain situational awareness and all its ramifications.



NEW SNELL HELMET STANDARDS SET

The Snell Memorial Foundation, a non-profit research organization involved in helmet testing and safety certification, has announced specifications for its 1980 Standard for Protective Headgear. The "Snell '80" updates the research arm's 1975 standards and became effective July 1, 1981.

The new standards will be in force concurrently with the 1975 standards until July 1, 1982, when the old specifications will become invalid.

New testing procedures distinguish Snell '80 certification from Snell '75. The principal change has been to update testing procedures to further simulate the effects of impact on helmets in the real world — crashes.

For example, the Snell '80 flammability test requires a helmet shell be placed in a 790-degree propane flame for 30 seconds, and upon removal of the source of heat the helmet must be self-extinguishing within five seconds. Helmet trim and chin strip are tested in the same manner for 10 seconds, passing the test by extinguishing themselves within five seconds.

A new test involving helmet chin bars requires that an 11-pound weight be dropped 23.6 inches onto the chin bar. A two-inch deflection causes failure of the test and rejection of the helmet.

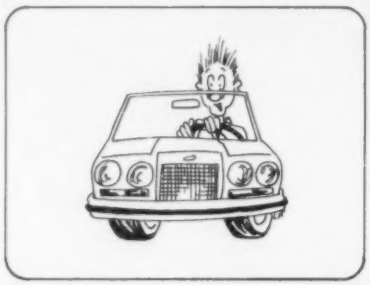
New in scope to Snell '80 standards is that a helmet undergoes a "roll bar" test, in which it impacts a roll bar three times at a specified force. The helmet must pass this individual dual test in order to receive certification. It simulates the type of impact forces that might be received in a vehicle turn-over.

"This gives us a better idea of the reserve capacity of the helmet," said Dr. George G. Snively, director of research at the Snell Foundation.

To receive the Snell approval, helmets are tested in four areas of performance: Energy management, environmental resistance, retention system and quality control. Snell tests only sample helmets and issues a blanket helmet-type approval to a manufacturer. Subsequent testing is done by Snell on a random basis, with regular lot-testing performed by the helmet makers themselves to assure the Snell standards are maintained on a production basis.

"In other words," Snively said, "Snell tests the helmet's ability to shrug off all the things likely to happen to it prior to and during a crash."

(Auto Week)



GM RENEWS GRANT TO STUDY DRIVERS IN CRASH CLIMATE

General Motors has awarded its third grant of $25,000 to the University of Toronto Institute for Aerospace Studies for another year of research on how drivers react in highway accident situations.

Dr. Mounir M. Kamal, head of the Engineering Mechanics Department at the GM Research Laboratories and monitor of the grant said, "During the first year of the grant, the Toronto researchers conducted a series of experiments using an instrumented test car and a laboratory driving simulator to determine how drivers react when confronted with an obstacle which suddenly appears from the edge of the road.

"During the past year, they carefully analyzed the data which included precise video measurements of where drivers were focusing their visual attention during their response," Kamal said.

"Based on these and other measurements, the researchers have developed a preliminary mathematical model of how drivers steer in an attempt to avoid sudden roadway obstructions.

"In the coming year," Kamal added, "the driver model will be further refined and then used to explore the effects of different driver, vehicle and roadway factors on the performance of obstacle avoidance maneuvers."

(Automotive News)

AUTO INSURANCE EXPENSIVE IN WEST GERMANY

Military Transportation Management Command officials caution service members to consider the high cost of automobile insurance in West Germany before shipping privately-owned vehicles there.

They advise that some members are abandoning their private vehicles at the port of destination, often because they can't purchase auto insurance. As a result, property disposal is required and government transportation costs are lost.

The insurance rate structure in West Germany is complicated, officials warn, because both American and German tariff rates are available. Service members may insure their vehicle under either system, and transportation officials said members may realize significant savings by considering both tariffs before purchasing insurance.

Persons being assigned to West Germany should contact their local transportation management office for shipping and insurance information. They should also contact their sponsor for specific details on current rates.

JOGGING

From Dr. Michael DeBakey, the heart specialist: "I don't have any strong objection to jogging for people who are relatively young, say under 30. I do have some objections to joggers who get out in the middle of the street, especially at dusk or dawn when I've nearly run into them with my car. Now that's dangerous."

(California Highway Patrol)

CHECK TIRE PRESSURE WHEN TEMPERATURE DIPS

If the last time you checked your tire pressure was during the warm weather, better check it again, suggests Car Care Council. Outside air temperature directly affects tire pressure which, in turn, affects gas mileage.

Tires which already may have been a few pounds below proper pressure toward the end of summer could easily become eight to 10 pounds underinflated on a freezing day. This increases the tire's rolling resistance, reducing gas mileage by as much as five percent. And, it can cut tire life by about 25 percent.

Recommended tire pressure is given in the owner's manual or on an information plate posted on the car. Always check the tires cold or when they have been run no more than a mile or two.

ADVICE TO YOUNG DRIVERS

Possibly the most celebrated American philosopher, Benjamin Franklin, is quoted more often than any other source. We could use a man of Ben's talents today. Especially when it comes to coining phrases about seat belt use. To this end, DRIVER proudly (?) presents for your enjoyment and further edification:

He that with a car would drive, The seat belt must fasten to arrive.

A click in time saves a stitch – or nine.

Don't buckle your belt before you're under it.

Don't count your passengers until they've buckled.

He that drives with speed will die fast.

The seat belt is the mother of good luck.

Keep thy seat belt buckled, and thy seat belt will keep thee.

The passenger in a belt catches no second collision.

Employ thy belt well, if thou meanest to gain leisure.

Not to use your seatbelt is to drive with the door open.

Fools complain about laws and wise men use them.

Many a driver, for the sake of a few minutes on the road, has gone to an early grave.

Spare the safety belt, bury the passenger.

Belt not, live not.

Of course, Ben wouldn't have forgotten motorcyclists. For example, he might have said:

Ride thy motorcycle, let not it ride thee.

Want of a helmet does us more damage than want of a few bucks.

It is hard for a helmet-less rider to stand upright after an accident.

This is the last instant that the Bridgestone banners flew as Lee Anderson's mini-pick
Later in the same race, Anderson was apprently knocked unconscious while crossing some
of a turn. Emergency crews had to remove the vehicle's steering wheel and part of the roll
He was conscious when removed from the vehicle and was released after being treate
emergency room.

Motorcycles, probably the fastest of the off-road racing vehicles, ran two races during the world championship. Each race started 37 machines matching enduro desert riders against motocross stars.

RULES & PRINTED, UNWRITTEN BROKEN

As rule books go, the one for SCORE International off-road racing isn't very big. It's only slightly larger than a checkbook. And there are only 112 pages in it.

But this is as it should be because there is a bigger set of rules for off-road racing than those set in print. These are the rules of Mother Nature. Rules that are set in torturous terrain and brutal elements.

Off-road racing pits men and women from all walks of life against the demands of Mother Nature's rules, not to mention against each other and the clock. Off-road racing means overcoming the worst that both man and nature can dish out.

Mother Nature's rules are very much in evidence in the photos on these pages from the Bridgestone-SCORE Off-Road World Championship held during August at Riverside International Raceway in Southern California. The rules of man are printed on the pages of the SCORE rule book. Of course, among these rules are safety standards. But, instead of telling you vague outlines of these safety standards, DRIVER is going to reprint some of them so you can get the real feel for competition rules.

GENERAL REGULATIONS
Disqualification

G-21 — Drinking of intoxicating beverages in the pits, or the race course, or on the surrounding premises by any person is strictly forbidden. Also, the use of narcotics (amphetamines or other stimulants, barbiturates or other depressants) is forbidden. No drugs acting like or containing Ephidrine may be used, unless written authorization is obtained and presented to Race Officials prior to race day. Any

The outside sheet metal of this Bug may be
safety standards keep injuries to a minimum.

ni-pickup attacks the support pole on the left. g some dips and his truck went off the outside he roll cage to get Anderson out of the wreck. treated for lumbar strain at a local hospital

entrant, contestant, or crew-member in an Event who shows any evidence whatsoever of being under the influence of any of the aforementioned shall be disqualified, subject to suspension from all future Events and must leave those premises immediately at the direction of any Race Official.

LONG COURSE

G-31 — All contestants must report all accidents and breakdowns they may have witnessed to the Race Officials in charge at the first checkpoint following the scene of the accident or breakdown.

G-32 — Some visible means of warning must be placed on the road at least 200 feet in front of any accident or breakdown. Reflectors are recommended and at least two 15-minute flares are required to be carried on each vehicle.

COMPETITION REGULATIONS

CR-1 — Helmets: Must be of type approved by the Snell Memorial Foundation, 1975, with either a green or red Snell sticker attached. SCORE recommends each helmet be labeled (painted) with the driver's name, allergies or any other medical information. Straps must have "D" rings, no snaps.

CR-2 — Protective Clothing: Driver suits are required that effectively cover the body from the neck to the ankles and wrists, manufactured of fire-resistant material with the manufacturer's fire-resistant label attached.

One-piece driver's suits are highly recommended. Two-piece will not be allowed unless shirts have a positive hold-down system.

Driving gloves are recommended and made of leather and/or other fire-resistant material containing no holes.

continued

Off-road racing gets a little tight.

The older brother of 1979 Indianapolis 500 winner Rick Mears, Roger Mears batted .667 on the weekend. Here he heads for victory in the stock four-wheel-drive class. He also won the mini-pickup class, but suffered through two flat-tire-incidents to finish seventh in the Heavy Metal feature event.

nay be the worse for wear but the SCORE n.

The special race for three-wheelers had 51 starters, all of them in full motorcycle gear.

Motorcyclists' protective clothing including full-length boots, gloves, goggles, shoulder pads and padded trousers are highly recommended, and helmets which are full-coverage or full-face units.

CR-3 — Eye Protection/ Dentures: Eye protection is required for all occupants competing in or on vehicles (motorcycles) without full windshields, and those competing in closed vehicles must have eye protection available in the event the windshield is broken or knocked out.

It is highly recommended that competitors with removable dentures remove dentures prior to competing in an off-road event.

CR-4 — First Aid Kits: A suitable, weatherproof emergency kit, composed of individually packaged (10 unit minimum) supplies, must be carried in each vehicle.

Each 10-unit kit must contain at least the following items:

1 Four-inch bandage compress
2 Two-inch bandage compresses
1 Triangular bandage
8 2"x3" adhesive pads
16 1"x3⅜" adhesive bandages
10 Prep pads — treated
1 Eye dressing packet
10 Ammonia inhalants
1 Ace Bandage

CR-8 — Fire Suppression Equipment: Each vehicle except motorcycles shall be equipped with a portable UL-approved 2½-pound maximum ABC-rated dry chemical-type fire extinguisher, equipped with a capacity gauge. The extinguisher must be fully charged, securely mounted and easily accessible. Permanently installed, on-board fire suppression systems using either an approved dry chemical foam, or "Halon" agent, are highly recommended in addition to the portable extinguisher. An on-board system should have three (3) nozzles, one nozzle should be located in each of the following areas: driving compartment, fuel compartment, engine compartment.

CR-9 — Survival Supplies: All vehicles in competition in long-course events must carry at least two (2) days survival supplies and at least one (1) quart of water or other suitable liquid for each occupant.

Traffic is heavy at the switchbacks during the modified four-wheel-drive race.

Eventual modified four-wheel-drive race winner, Don Adams (#403) gets bumped from behind by Steve Mizel. Mizel didn't finish the race.

Although this is one of the few places on the track that is paved, the motorcycle riders don't seem to notice.

Of course, the list of rules and safety standards goes on covering such areas as horns, reflectors, suspension components, steering and braking components, electrical systems, fuel systems, roll cages and body restraints.

Also in SCORE's rule book is a carefully formulated system of 19 class divisions that results in extremely close competition. The 14 four-wheel classes are designed to competitively categorize the myriad of vehicles which are specifically outfitted for off-road racing, while five motorcycle classes are basically categorized by displacement and driver age.

One thing that's always a constant in any form of racing is change. Changes in design and changes in competition regulations lend to the dynamic nature of any racing activity. Yet the change that took place at the Off-Road World Championship was almost totally unexpected.

The unwritten law of any sport is that you keep anything that you win. Occasionally a racer will give away a trophy, but the purse — the cash — is always pocketed. Well, at least that was the rule until 26-year-old Mike Gillman won $17,000 in the Pepsi Challenge of Champions. Immediately after beating 29 of the top off-road drivers in the sport, he donated his prize money to the Cystic Fibrosis Foundation. Painted on the side of his vehicle are the words: "Driving hard to conquer Cystic Fibrosis."

Whoever said, "Rules were made to be broken," must have been right in this case.

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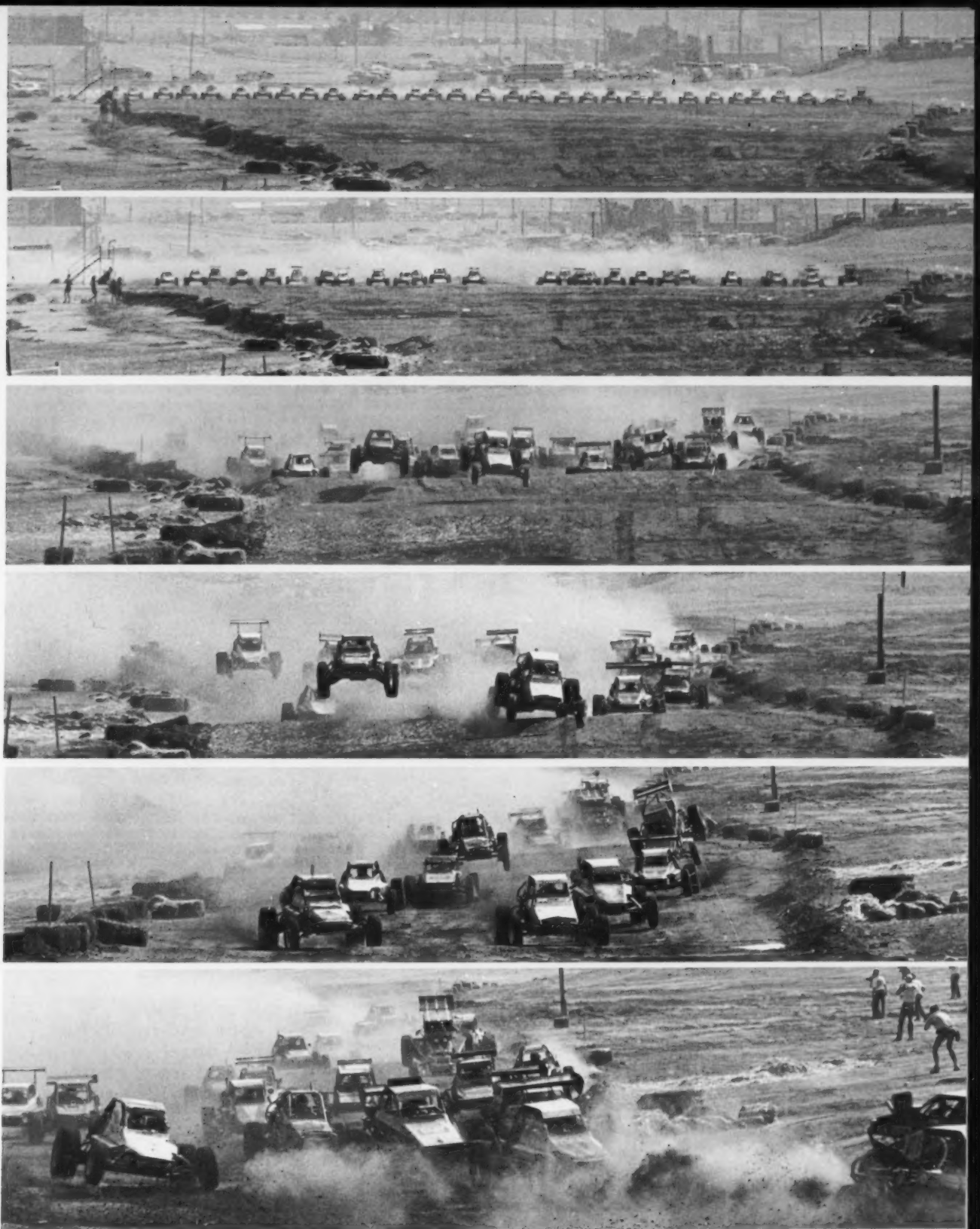


At the start of the Pepsi Challenge of Champions, 30 machines funnel from a 400-yard-wide starting grid into the narrow first turn with a series of jumps, bumps and grinds.

continued

(left) Glenn Harris led the Pepsi Challenge of Champions from the start, but got caught in traffic on the last lap. At that point Mike Gillman drove over Harris' tires and the hay bales along a wall to take the lead that he held to the checkered flag. **(right) Good jumping form** wasn't enough to give Jeffrey Jenning a motorcycle victory. He led the first heat twice, but finished second and had a clear lead in the second heat when he flipped his bike on the last lap. Thanks to his safety gear he was able to get back on his machine and salvage another second place.

(left) First lap, first corner and it's already door-handle-to-door-handle in the Heavy Metal Challenge race.
(right) Aren't race car wings supposed to keep the wheels on the ground?

Results of the Bridgestone-SCORE Off-Road World Championship
(Winner, vehicle, average speed)

Class 1 — Pepsi Challenge of Champions (Unlimited single-seat buggies) Mike Gillman, Funco, 47.893 mph6 **Class 1 — 1600** (1600cc single-seat buggies) Nick Herda, Hi-Jumper, n/a **Class 2** (Unlimited two-seat buggies) Mike Lund, Chenowth, 44.084 mph **Class 2 — 1600** (1600cc two-seat buggies) David Kreisler, Raceco, n/a **Class 3** (Production four-wheel-drive vehicles) Roger Mears, Jeep Honcho, 41.99 mph **Class 4** (Modified four-wheel drive vehicles) Don Adams, Jeep CJ-7, n/a **Class 5** (Unlimited "Baja Bugs") Marty Letner, Baja Bug, 42.609 mph **Class 5 — 1600** (1600cc "Baja Bugs") John Johnson, VW, 39.879 mph **Class 6** (Production sedans) Steve Savage, AMC Pacer, n/a **Class 7** (Production mini-pickups) Roger Mears, Toyota, 37.503 mph **Class 8** Heavy Metal Challenge (Full-size pickups) Ivan Stewart, Chevy, n/a **Class 9** (1200cc single-seat buggies) Jack Johnson, Hi-Jumper, n/a **Class 10** (1200cc two-seat buggies) Jim Wright, Raceco, n/a **Class 11** (Stock "Beetle" type VWs) Tom Haliburda, VW, n/a **Class 20** (Up to 125cc motorcycles) Richard Coon, Honda, n/a **Class 21** (up to 250cc motorcycles) Jim Tarantino, Honda, n/a **Class 22** (Open motorcycles) Broc Glover, Yamaha, 46.953 mph first race, 48.324 mph second race **Class 30** (Motorcycles, riders 30 & older) Rick Shirey, Yamaha, n/a **Class 39** (Motorcycles, riders 38 & older) Dave Miller, Husky, n/a **Three Wheeler** (Under 200cc) Curtis Sparks, Honda, n/a (Under 250cc) Mark Weixeldorfer, Honda, 42.260 mph (Open) Dean Sundahl, Honda, n/a

Ted Nugent, the wild, tough rock-and-roller, has taken up off-road racing.

"The word 'intensity' covers it all," said Ted Nugent, speaking of his off-road racing style.

In fact, "intensity" sums up just about everything Nugent does. The rock and roll star of such hits as "Cat Scratch Fever," "Wango Tango,"

and "Weekend Warriors" is intense about all his activities. Why else call an album "Intensities in 10 Cities"?

On stage as well as on vinyl, Nugent's musical style is tough and, if you will, hard-driving. This carries over into his off-road racing. "I try to keep myself and the machine on the maximum line. There's a fine line between maximum output of the vehicle and losing it."

At the Bridgestone-SCORE Off-Road World Championship at Riverside International Raceway in early August, Nugent did "drive on the maximum line." In his 1200cc VW-powered off-road vehicle, he bettered his third-from-last starting position throughout a 12-lap Class 9 race. A broken front-end near the end of the race held him to seventh place in his class of 25 racers.

Nugent's interest in off-roading came out of his second great love, after rock music — hunting. He bought his first four-wheel-drive vehicle, a Bronco, in 1970. He learned all he could about four-wheel drive, because "My hunting trips took me places I had to go alone.

"Racing was the next logical step," he said.

These days, his friends include off-roaders like Mickey Thompson, Steve Kelley and Bill Stroppé, as well as Parnelli Jones. Thompson got him involved in a celebrity off-road Jeep race at the Los Angeles Coliseum in 1980.

Thompson said, "Ted has all the skills and capabilities to compete with professional off-road racers . . . He's a natural."

Tracy Valenta, Nugent's sponsor, agreed, saying, "Ted's first (professional) race was the Barstow classic where he convinced our team he has a lot of potential in off-road racing. He is a true competitor and upheld his macho image by staying in his car for 10 hours of rough, tough pounding."

Ted himself, not one for false modesty, said "I think I've got all the capabilities of any driver out there today. I just lack experience. I'm just getting into it now, developing the rhythm. Right now I'm just looking 100 yards ahead. The rhythm will come."

He said the driving rhythm is not the same as his musical rhythm. "If I used my rock and roll rhythm, I'd wreck that thing (the vehicle) in two minutes."

The similarity is in that word "intensity." Nugent drives the same way he plays his guitar — aggressively. "I'm pleased with my driving," he said. "I take an aggressive stand and I have to learn where to feather it.

"I don't know where the limits are," he continued. "If there's a hole I can get through, do I have to be polite, or do I go for it?"

Because of this inexperience, he

continued

(left)
A devoted father, Nugent takes a break for a sandwich and soft drink with son, Toby. Asked what his daughter, Sasha, and his son think about their father racing, he said, "They dig it. They're my pit crew."

(below)
Ted Nugent is easily accessible to his fans, including this one who sported a duplicate of Nugent's favorite headgear — a camouflage hunting cap. In contrast to his on-stage "wild-man" image, Nugent is against drugs. He starred last month in a TV anti-drug commercial campaign called "Get High on Yourself."

Toward the end of the 12-lap Class 9 race, Nugent broke both front shocks on his vehicle while going over a bump. Despite bottoming out on succeeding bumps and poor steering, he went on to finish the race in seventh position.

(above)
Nugent (915) appears to be digging in at a hole on the inside of a sharp curve in the Riverside course for the Bridgestone-SCORE Off-Road World Championships.

(below)
After the race, Nugent tried to cool off in the 100-degree Riverside heat as he explained the mishap that broke the front end of his racer.

As aggressive behind the wheel as he is on stage, Ted Nugent rips through a section of the course that has been blanketed by hay from obliterated hay bales.

asks a lot of questions of the other drivers, in the effort to learn fast. "I'm all eyes and ears. I'm giving myself a crash course." He grinned and added, "Not literally."

In fact, despite his obvious love for racing, he does not take foolish chances.

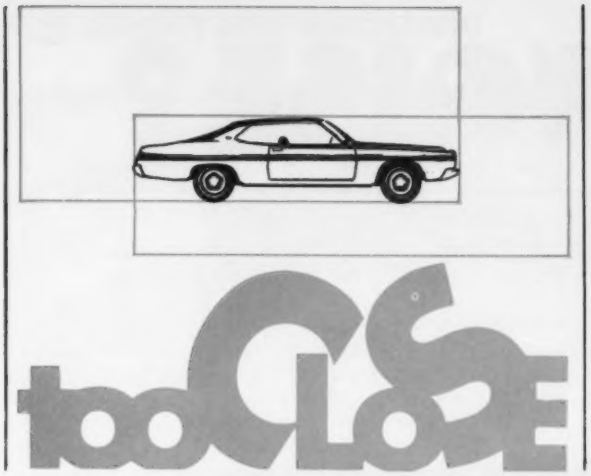
"Safety is foremost with me," he said. "I have a safety valve in my head that tells me to 'be careful.' I drive conservatively. I don't want to drive over anyone." More than trying to beat another driver, Nugent said "I'm trying to outdo the track — what I did on the last lap."

He does not think his interest in off-road racing will lead him to paved circuit racing. "Much as I love speed, I won't do a paved course," he said. "I have too many hunting seasons ahead of me, and I have children to bring up." Besides, he said, "I can have more fun at 50 mph off the bumps on an off-road course than at 130 on a paved road in my Mercedes."

Nugent plans to stay with off-road racing, and to arrange his five to six month tour schedule around the races. He wants to enter four or five races next year, including the Riverside race again, and perhaps the Baja 1000. Between his music, his family, hunting and racing, he will have a very full schedule.

Nugent is obviously hooked on off-roading, and he is good at it. Despite being blinded by dust at the beginning of his race, which put him third from last, and despite the broken front end, which caused him to "plow mucho terrain like a tractor," Nugent said "I wasn't sure how much I had to nurse it. Maybe I was too safety conscious."

No, we think he did it just about right.



too CLOSE FOR COMFORT

Although this happened several years ago, I remember it as if it were yesterday. I was stationed at Vandenberg AFB, Calif., and assigned as an instructor in the Traffic Safety Office.

My family and I were en route home on leave and traveling east. The year was 1972. We departed Vandenberg at 5 a.m. and planned to make four hundred miles on the first day. It was a beautiful September day and the trip was going well. We were taking in the sights and stopping frequently. My daughter was two years old and she was riding in a child safety seat between my wife and me. The car I was driving was a 1970 AMC Ambassador. We were wearing our safety belts.

By afternoon we had reached San Bernardino. Here we turned northeast on I-15 and headed up mountainous terrain. The next 15 miles were uneventful. We were going up a steep grade on a divided four-lane interstate highway which was curving gently to the left. I was driving in the inside lane at 65 miles per hour. I was beginning to slowly pass a black Lincoln Continental town car which was moving at approximately 62 miles per hour in the right lane. There was a small shoulder to the road on the right, no guard rail and then a sheer drop of several hundred feet.

As my car's front bumper came up even with the rear door of the Lincoln I glanced across the interstate and saw a 1970 Ford Maverick go out of contol at an extremely high speed. Time seemed to stop, then the seconds turned into minutes. The Maverick lurched and then turned left, crossing his inside lane. Closing the gap he started across the 20-foot-wide shallow middle divider coming straight at me.

I grasped the steering wheel firmly with both hands. Not enough time to stop or speed up out of the way. In a desperate last second effort I turned the wheel sharp left and hit the brakes hard for a split second. I turned into the divider, my car started to roll to the right, it was up on two wheels. The Maverick cleared between my car and the rear of the Lincoln. I cranked the wheel hard right and hit the brakes again, pumping them to slow down. The Maverick crossed both lanes and went over the cliff. I brought my car to a stop. The Lincoln stopped in the right lane.

Our cars were never more than 10 feet apart in a forward direction. The Maverick missed my car by inches and the Lincoln by no more than two feet. Looking back, if I had made any other move, I wouldn't be writing this. I can still hear my wife's scream and feel my car turning left in protest. I believe that if I had not had my seat belts on I couldn't have stayed behind the wheel. My actions were a violent last ditch effort of a human body wanting to live.

Witnesses stated that they believe the Maverick was traveling at over a hundred miles per hour. The California Highway Patrol evacuated the driver of the Maverick and said he was alive but in very bad shape. For my wife and me, this mishap was much "Too Close for Comfort."

An excellent recount of an extremely perilous encounter. Seat belts do more than save lives during accidents. They allow the driver to stay behind the wheel and in control during difficult maneuvers. Quick thinking, acting, and seat belts saved this family. Thanks to the writer for sharing the experience with us.

LELAND K. LUKENS
Brigadier General, USAF
Director of Aerospace Safety

WHATS that NOISE?

Part One

Unusual noises while driving can be very distracting. Because these distractions take your mind off your driving they can lead to near misses, minor accidents and even major accidents. These noises are also signals from your car that something is wrong and needs attention. If the noisemaker isn't fixed, it too can cause an accident.

But knowing what these noises are and what to do about them is a challenge for every motorist. It's the same for every backyard mechanic.

Everybody in the office knows if you are a backyard mechanic. It's easy to tell because you share your area of the shop with the coffee machine. This is probably more because you're the first one at work than because you make the best brew. That also means that you get to see each and every body in the shop first thing in the morning. (I'd have said "each and every person," except most of them aren't really human until after they've downed their first cup.) And there's always one of them with a car problem.

"Oh, is my car givin' me trouble," the victim begins, grabbing a chair and sliding up next to your desk while reaching for the ash tray.

You look up from the middle of the report that was due two days ago, but showed up on *your* desk sometime during the night.

The poor soul continues, "Every time I go around a corner it goes 'aaaaauuuuuhaaaaauuuuhaaaa' and 'chippa chippa.' "

"Hum," you say as the first puff of smoke rolls across your desk.

"Yeah, and it's blubbering, too!" comes a reply.

"Really?" you retort while raising an eyebrow. You know better than to ask, but you do anyway, "What did it sound like before?"

"It'd go 'aaaaaaaaaaaasquee!-aaaaa,' " comes back to you.

"Umm," sort of exhales from you. "What about the 'blubbering?' "

"Well, it is sort of a 'popply, popply' followed by a 'pock-splatpock-splat.' "

You raise both eyebrows while taking another swig of coffee.

"Yeah, it sounded real good after that last tune-up you gave it. You know, 'frumma frummafrumma' followed by 'wowowowowow-OWOW!' but now it's more of 'wowwow-eeek-wowwo-eeek-wowowow-eek.' You know what I mean?"

And you nod your head and ask, "Did it go 'creak-graunch, creak-graunch' just before this started?"

"It sure did!" comes a choked reply as the troubled owner leans forward, almost spilling the coffee, to hear what comes next.

"It's all for naught," you sigh. "They just don't build them like they used to in Yurrop." And you shake your head in disgust.

Now baiting a friend is one thing, but as a backyard mechanic they expect you to come with an answer for every noise they *think* they hear. Deciphering their interpretation of the noise is your problem. However, once you have it translated, the noise is still only a small clue as to what the problem is.

In this and the next few issues of DRIVER Magazine, noises and what causes them are going to be examined. In fact, in later installments of this series, noises unique to certain cars will be diagnosed.

But enough of this excess verbiage; on to trouble shooting the myriad of sounds motor vehicles can make.

Vehicle noises would be easy to solve if we could just hook the offending vehicle up to scope and read the print-out. But most backyard mechanics can't afford such a diagnostic machine and have to depend on their own eyes and ears to trace problems.

PING OR KNOCK

- Fuel octane too low
- Ignition timing incorrect
- Carburetor set too lean
- Vacuum leak
- Distributor centrifugal or vacuum advance malfunction
- EGR valve malfunction

DIESELING

- Ignition timing incorrect
- Idle mixture setting incorrect
- Idle speed incorrect

There's a noise coming from someplace in there, but where?

- Idle solenoid defective
- Carburetor linkage, throttle linkage, choke linkage or fast idle cam binding

BACKFIRING (Intake)

- Ignition timing improper
- Accelerator pump faulty
- Choke operation improper
- EGR valve defective
- Fuel mixture too lean
- Choke valve initial clearance too great

(Exhaust)

- Vacuum leak
- Diverter valve faulty
- Choke operation faulty
- Exhaust system leaking

(COLD ENGINE accompanied by hesitation, stalling and sag or stumble during acceleration)

- Choke control switch defective
- Choke vacuum kick setting incorrect
- Float level too low
- Accelerator pump defective (punctured diaphragm)
- Secondary lockout adjustment incorrect, secondary throttles not closed

(COLD ENGINE with hesitation, sag, stumble or stall after first mile of warmup)

- Choke control switch defective
- Accelerator pump defective (output low)
- Float level setting too low

(COLD ENGINE with sag, stumble or hesitation and black exhaust smoke)

- Heat crossover system plugged

(WARM ENGINE with sag and stumble as well as hesitation with a small amount of gas pedal movement)

- Vacuum leak (hose off or attached to wrong fitting)
- Accelerator pump weak or inoperative
- Float level setting too low
- Metering rods binding or sticking
- Carburetor idle or transfer system plugged or partially blocked
- Heated air inlet frozen or binding (plugged sensor)

(WARM ENGINE with sag and stumble as well as hesitation with a heavy gas pedal movement)

- Accelerator pump defective
- Metering rod carrier binding
- Vacuum leak (large)
- Float level setting too low
- Defective fuel pump
- Fuel line kinked
- Fuel filter plugged
- Air door setting incorrect

GENERATOR

- Drive pulley loose
- Mounting bolts loose
- Bearings dirty or worn
- Diodes or stator defective

STARTER

(Solenoid plunger vibrates when switch is engaged)

- Battery weak
- Solenoid contacts corroded
- Wiring faulty
- Connections inside switch cover broken
- Hold-in wire open

(High-pitched whine during cranking before engine fires)

- Distance between starter pinion and flywheel too great

(High-pitched whine after engine fires with key released)

- Distance between starter pinion and flywheel too small

(Intermittent high-pitched whine)

- Flywheel runout

continued

continued

MAIN BEARINGS

- Oil supply inadequate
- Clearance excessive
- Crankshaft end play excessive
- Flywheel or torque converter loose
- Vibration damper loose or damaged
- Crankshaft journals eccentric or out-of-round
- Belt tension excessive

CONNECTING RODS

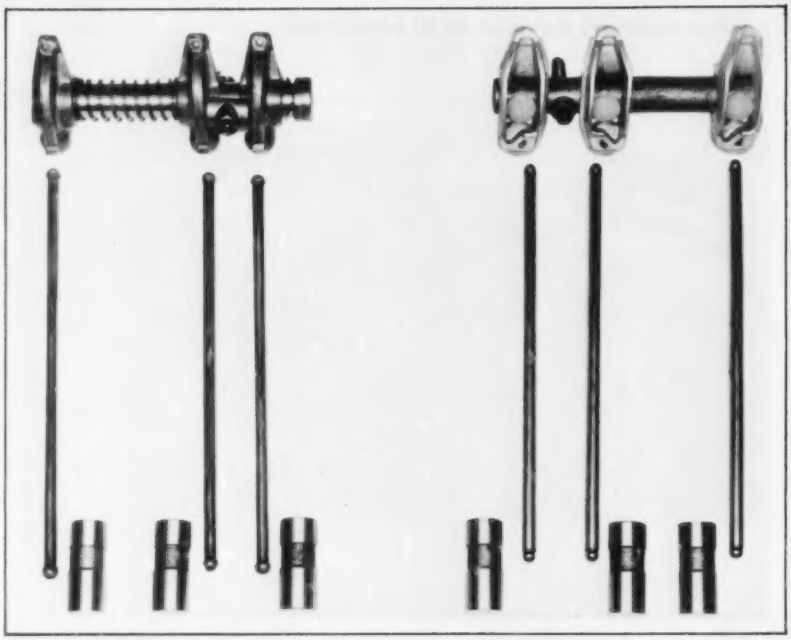
- Oil supply inadequate
- Bearing clearance excessive
- Bearing missing
- Crankshaft connecting rod journal out-of-round
- Connecting rod or cap misaligned
- Connecting rod bolts tightened improperly

PISTONS & RINGS

- Piston-to-cylinder wall clearance excessive
- Cylinder walls excessively tapered or out-of-round
- Piston ring broken
- Piston pin loose or seized
- Connecting rods misaligned
- Piston ring side clearance excessively loose or tight
- Carbon build-up on piston excessive

VALVE TRAIN

- Oil supply insufficient
- Push rods bent or worn
- Rocker arms worn
- Pivots bridged
- Hydraulic lifters dirty or chipped
- Valve lifter leak down excessive
- Valve lifter face worn
- Valve springs broken or cocked
- Valve stem-to-guide clearance excessive
- Valve bent
- Rocker arms loose
- Valve lock missing
- Valve seat runout excessive
- Push rod rubbing or contacting cylinder head
- Camshaft lobes worn
- Valve lifter oil feed holes plugged



VALVE TRAIN

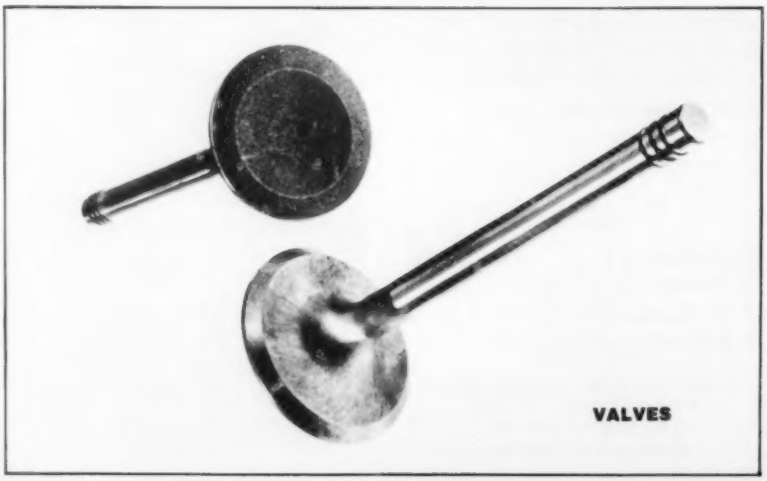
- Valve lifter check ball faulty
- Rocker arm retaining nut installed upside down
- Valve lifters incorrectly fitted to bore size
- Valve lifter plunger or push rod seat faulty

VALVES

- Valve lash improper
- Valve lifters worn, dirty or faulty
- Valve guides worn
- Valve seat or valve face runout excessive
- Camshaft lobes worn
- Rocker arm studs loose
- Push rods bent
- Valve springs broken

EXHAUST

- Exhaust pipe joints leak
- Muffler burned or blown out
- Exhaust pipe manifold flange leaking
- Exhaust manifold cracked or broken
- Manifold leaking at cylinder head
- Muffler or tail pipe obstructed



VALVES

COOLING SYSTEM

- Fan hitting shroud
- Water pump impeller loose
- Fan belt dry
- Drive pulley surface rough
- Water pump bearing worn
- Fan belt alignment improper

BRAKE SQUEAL

(Without applying brakes)

- Front linings worn out
- Drums or rotors covered with dust or oil

(When applying brakes)

- Outboard shoe insulator damaged
- Brake pads or linings incorrect type

BRAKE DRUM

BRAKE CHATTER

(Also rough and pulsating)

- Lateral runout excessive
- Parallelism not specifications
- Wheel bearings not adjusted
- Rear drums out-of-round
- Disk pads in backwards, steel against rotor

GRATING TIRE NOISE

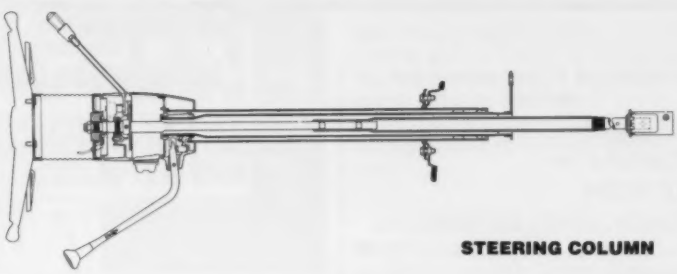
- Tire pressure incorrect
- Wheel alignment out of tolerance
- Spindle or suspension damage

GENERAL ROAD NOISE

- Tires worn abnormally
- Tire out of balance
- Tire pressure too low

FRONT END

- Wheel lug nuts loose
- Wheel bearings loose or worn



STEERING COLUMN

- Shock absorbers loose or worn
- Shock mountings loose or worn
- Strut bushings loose or worn
- Struts loose or worn
- Control arm loose or worn
- Steering gear-to-frame mounting bolts loose
- Upper control arm bushings worn
- Lower control arm shaft bushings worn
- Ball joints insufficiently lubricated

SPRINGS

- "U" bolts loose
- Eye bushings loose or worn
- Interliners worn or missing

SHOCK ABSORBERS

- Bolts or studs loose
- Shock absorber reservoir has undercoating on it
- Bushing excessively worn
- Air trapped in system

STEERING COLUMN

- Coupling pulled apart
- Coupling bolts not tightened
- Column not aligned correctly
- Lower joint broken
- Horn contact ring not lubricated
- Bearings or bearing surfaces lack grease
- Lower or upper shaft bearing worn or broken
- Shaft lock snap ring not properly seated
- Plastic spherical joint not lubricated
- Shroud or housing loose
- Lock plate retaining ring not seated
- Sight shield loose

(When tilting tilt column)

- Upper tilt bumpers worn
- Tilt spring rubbing in housing

RATTLE OR CHUCKING IN MANUAL RACK & PINION

- Rack and pinion attachment loose
- Lubricant lacking
- Lubricant incorrect
- Pitman arm loose on shaft
- Steering gear mounting bolts loose

RATTLE OR CHUCKING IN POWER STEERING GEAR

- Pressure hoses touching engine parts
- Pitman shaft over center adjustment loose
- Tie rod ends loose
- Pitman arm loose
- Rack and pinion attachment loose
- Worm and piston assembly has too much free play
- Sector shaft or thrust bearing adjustment loose
- Pot coupling has too much free play
- Shaft serrations worn

STEERING PUMP GROWL

- Hoses or steering gear restrictions causing excessive back pressure
- Pressure plates, thrust plates or rotor scored
- Cam ring worn

STEERING PUMP RATTLE

- Vanes not installed properly
- Vanes sticking in rotor slots

STEERING PUMP SWISH

- Flow control valve defective

SQUAWK WHEN TURNING

- Damper "O" ring on valve spool cut

continued

continued

STEERING PUMP MOAN OR WHINE

- Pump shaft bearing scored
- Fluid level low
- Air in fluid
- Hose or column grounded
- Valve cover "O" ring missing or damaged
- Valve cover baffle missing or damaged
- Pumping element components interfering
- Bracket alignment loose or poor

HISSING WHEN PARKING

- Steering gear internal leak (Check valve assembly first)

STEERING PUMP CHIRP

- Power steering pump belt loose or worn

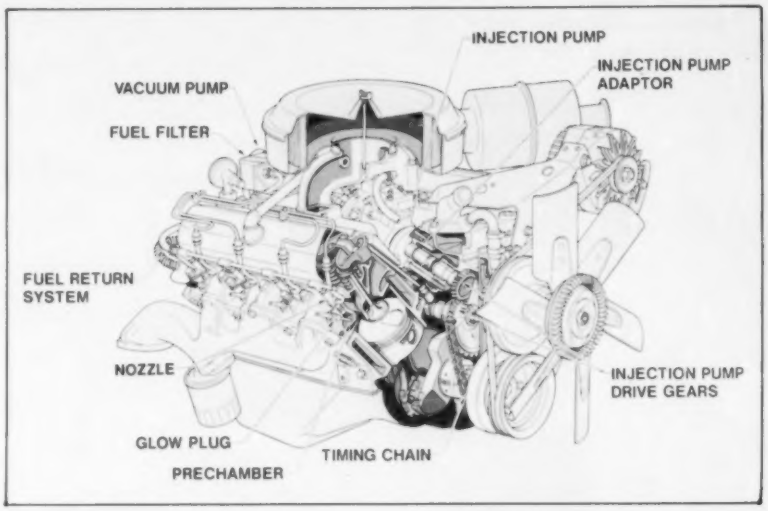
STEERING PUMP CLICKING

- Pump slippers too long
- Pump slippers springs broken
- Pump slippers worn
- Rotors nicked
- Cam contour damaged

TURBOCHARGED ENGINES

POWER STEERING BUZZING WHEN NOT STEERING

- Noisy pump
- Steering shaft upper bearing has too much free play
- Steering shaft upper bearing loose on shaft serrations



DIESEL ENGINES

TURBOCHARGED ENGINES

- Exhaust system loose
- Exhaust system leaking
- AIR system defect
- Turbocharger oil supply restricted
- Internal turbocharger defect
- EFE system defect (GM models only)

(Detonation)

- Spark advance malfunction
- Retard system malfunction
- EGR system defect
- Carburetor air inlet restricted
- Turbocharger air inlet restricted
- Actuator allowing too much boost
- Carburetor power system defect
- Internal turbocharger defect

DIESEL ENGINES EXCESSIVE NOISE AT IDLE

- Pump timing incorrect
- Air in injection lines leading to nozzles
- Nozzle(s) faulty
- High-pressure lines installed improperly

RAPPING IN CYLINDER(S)

- Air in fuel system
- Air in high-pressure lines
- Nozzle sticking in open position
- Nozzle opening pressure low

EXCESSIVE COMBUSTION NOISE WITH BLACK SMOKE

- Pump timing incorrect
- Pump housing pressure incorrect
- Injection pump defective
- EGR valve malfunction
- Injection pump internal malfunction

VACUUM PUMP

- Pump and drive assembly screws loose
- Tube or pump assembly loose
- Valves not functioning properly

Next month the Backyard Mechanic will listen to the clutch, manual transmission, automatic transmission and axles to find out, "What's that noise?" In succeeding months specific problems unique to various cars will be the subjects.

tteecc!h!h DOUBLE TECH Q A

With TSgt RON LATHROP

EDITOR'S NOTE: Although the majority of the comments DRIVER has received about the May 1981 article, "Ruin It Yourself: The Backyard Mechanic Case," were positive, we did get a response in which the writer seems to have missed the point. Because the subject is extremely important and has a high impact on motor vehicle safety, this month's Double Tech will be dedicated exclusively to replying to various parts of the dissenting view

COMMENT: In the "Ruin It Yourself" article Mr. Proven's statement about "ruin-it-yourselfers" indicates that all backyard mechanics are that way.

REPLY: Donn R. Proven, Equipment and Tool Institute executive manager, was very emphatic that those people who do know how to handle tools, can follow instructions and do all the steps, aren't in the ruin-it-yourself category.

COMMENT: While I'll agree that there are a few that are that way (ruin-it-yourselfers), there are a lot more that, although not qualified mechanics, do just as good as any qualified mechanic and don't skip steps because they think they are unimportant or because they are time-consuming, as Mr. Proven says they do.

REPLY: Your feeling that there are only a few who qualify as ruin-it-yourselfers is understandable. Unfortunately, the evidence of repairs having to be redone and other major areas of damage assessment indicate there are far more people trying to do their own repairs and failing than we would like to think. It is getting to the point where people who have no business anywhere near a wrench are taking hammer in hand and working on their cars. The situation is getting dangerous! And it is made even more dangerous by the people who are skipping any kind of maintenance altogether (see the SAE Safety story in the May 1981 issue of DRIVER). We wouldn't have printed the story if we didn't think the problem was real.

Again, Mr. Proven didn't classify people who can handle tools and follow instructions step-by-step as ruin-it-yourselfers.

COMMENT: Mr. Proven does a lot of talking about the backyard mechanics and how they ruin their cars but he doesn't state the reason or suggest a possible solution to the problem.

REPLY: If you reread the article you'll see that Mr. Proven says the reasons they ruin their cars are:

- Not being able to handle tools;
- Not using a manual;
- Not getting professional advice; and
- Not doing *all* the steps.

Therefore, the solutions are:

- Learning how to use tools;
- Getting and using a manual;
- Asking for professional advice; and
- Doing every step listed.

COMMENT: The reason more and more people are working on their own cars is the high cost of labor that goes with most auto work. To give you one example: a friend of mine had a timing chain and gear go out on his car. After checking to make sure that was the problem, I told him what I would charge him to fix it for him. He decided to take the car to a garage to have it fixed and it ended up costing him almost $300.

REPLY: Most people won't argue with you about the cost of repairs forcing more people into the do-it-yourself business. However, most of these people need more training, closer supervision and a better understanding of why every step has to be followed before they begin do-it-yourself projects or they'll end up as ruin-it-yourselfers. Have you ever tried to get an engine to run properly when the camshaft is a single tooth out of time on the chain?

By the way, an engine has either a timing chain or timing gears, not both.

COMMENT: Another one that some of the more experienced backyard mechanics run into is that service stations and garages try to get you to buy parts that you don't need. To give you an example of that: I took my car in to have the front end aligned. The first thing they always do is to check the ball joints before starting. After checking my ball joints they told me that I needed new ones, which sounded funny to me since I had changed ball joints the day before. Also, they have articles in *Popular Mechanics* and other magazines about what service station and garage mechanics do to make parts look bad that really aren't.

REPLY: This is a very common complaint and when it happens to us we all feel that it is a very widespread practice. But look at the facts, as Mr. Proven pointed out in the May 1981 article: Only three percent of all the complaints about fraudulent car repairs have turned out to actually be fraud. All the rest involved the mechanic just not knowing what to do or how to do it right.

Personally, I don't think the problem is with mechanics — it is with so-called journalists. Ever since Watergate, every do-gooder has wanted to be an investigative journalist. And when there is nothing to investigate, they make a mountain out of a molehill.

The real cases of rip-off mechanics are few and far between. And by no means as common as the investigative reporters would have you believe.

COMMENT: Although you have a solution for the people that read DRIVER Magazine, there are a lot of people that don't and in the civilian world no one even gets DRIVER.

continued

continued

REPLY: You're right about DRIVER not being given away to the civilian world, but they can subscribe (see page two of any issue). And the Backyard Mechanic has been consolidated into three volumes that are available from the Consumer Information Center, Pueblo, CO 81009. The fact that the Backyard Mechanic volumes are the best sellers in government consumer information might tell you something.

Even if the information is available, there is no way people can be forced to read it. DRIVER's art department does all it can to entice reading, but the rest is up to the individual.

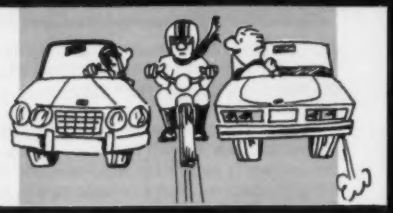
COMMENT: So Mr. Proven, instead of talking about the problem, should be doing something to help the auto owners to be able to get quality work on the cars and to help educate them about how their cars work and how to tell when something is wrong and what possibly is causing it.

REPLY: Before a problem can be tackled by the public they must be informed that one exists. This is the reason that Mr. Proven has gone on the offensive: to bring to their attention the problems in auto self-repair. Nobody is working more diligently to help people cope with auto repairs than he is.

COMMENT: In conclusion, if I had put down in words what I felt after reading your article your ears would have burned for a week.

REPLY; I'm sorry if the story with Mr. Proven rubbed you the wrong way. I'm sure that if you reread it now you'll agree with him and find that he's really trying to help.

BACKfire
LETTERS to the EDITOR



SAFE BICYCLING

I enjoyed the article on bicycling in your July issue. There are a few people who do not practice safe bicycling though. My qualifications are: membership in the Hawaii Bicycle League, active racer with the United States Cycling Federation, Vice President of the Waipahu Pedal Pushers, Member of the League of American Wheelmen (LAW) and training to become an Effective Cycling Instructor through the LAW, and an advisor to the Hawaii Advisory Committee for Better Bikeways and Better Laws.

I ride almost 30 miles per day to and from work. I would like to point out that the safest place to be when riding a bicycle is where the driver of a motor vehicle can see you. Last year I was hit TWICE by cars whose drivers failed to comply with the law. As a result I have a broken back (compression fracture). The best place to ride is where you feel the safest. If that is in the middle of a narrow, two-lane street, that's where you should ride. However, when you approach an intersection you should always MERGE with the traffic — that way you can always be seen. If you are riding at night it is a law that you must have reflectors or lights that can be seen for 600 feet. As far as standing up when you go through an intersection, this affects the proper braking of a bike. The way to get the most from your brakes is to move your weight toward the rear of the seat allowing the rear wheel to grab the road. Standing on the brakes is dangerous as it can cause you to skid and lose control.

Many cyclists are intimidated by motorists who honk and curse at them. Remember, as a cyclist, you have as much right to the road as they do. You should have more because you are conserving GAS.

To sum up, remember to ride in the direction of traffic and on the most direct route. This way you can cut down on the time that is required to travel.

For safety's sake, check your vehicle prior to going on the ride, and wear a helmet and adequate safety equipment.

AMS-1 Earl V. Wolfe, USN
NAS Barbers Pt, HI 96862

Although the bicyclist has as much right to the road as the car driver, he is also extremely vulnerable to being hurt by the driver's errors. Not fair, but a fact of life all cyclists must take into account.

RAH, RAH, BYM

I really enjoy your publication and read it intently. I think the "Backyard Mechanic" is a real informative section, although the section does nothing great for me except win arguments because I have worked on cars since I was very young. I have found a lot of faults with every make of car and can list them off forever.

There are people always asking me to "trouble-shoot" their vehicles. But, then comes a scratch of disbelief from them when they don't believe I have found the real problem; i.e., *THE DRIVER!* Most cases are because people don't know how to take care of their cars. They only expect it to take them wherever they have to go and don't realize that it can't last forever. If the section on basic car maintenance is used, they won't have so much trouble. If they only realized that there is help — THE BACKYARD MECHANIC.

A1C B. Armbruster, USAF
Scott AFB, IL 62225

HINTS FOR COLD WEATHER SURVIVAL

Heaters, candles and sterno stoves have inherent toxic dangers if proper ventilation is not provided in shelters. Snowbound drivers should not use these heat sources without ventilation. To do so can result in (1) toxic gas poisoning and (2) suffocation due to loss of (burned up) air.

Frostbite can also be treated by placing the frozen part next to another person's body. The normal body temperature is 98.6 degrees Fahrenheit. As much as practical, the frozen body part should be placed in a part of the body that will provide best all around heat, such as the arm pit, crook of the elbow or crotch. If the part of the body used to thaw the frozen part becomes cold you merely switch armpits or elbows.

SP5(P) Donald B. Casey, USA
Twin Cities, MN 55111

WEARING OF HELMETS

In the August issue of DRIVER, I read a letter from MM2/SS Roy Becker about the wearing of safety helmets. He tells you in his letter "You don't have any proof that they (helmets) do any substantial good. . . ." I happen to know that they do a lot of good when it comes to protection.

I have been an ambulance attendant since I was 16. I am presently an Emergency Department Technician at Edwards AFB. Over the years, I have seen more victims of motorcycle accidents than I care to think about. I have seen riders get up and walk away from accidents that probably would have killed them had they not been wearing helmets. I have also seen riders killed in minor, low-speed accidents, simply because they were not wearing a helmet.

I am an avid motorcycle rider. I will not ride anywhere without a helmet, and I will not give a ride to anyone who does not have a helmet. My helmet does not interfere with my vision or my hearing. If yours does, maybe you should go out and buy a better helmet. Also, I have never seen or heard of any cervical injuries that were directly due to the wearing of a safety helmet.

All riders should keep in mind that the American Academy of Orthopedic Surgeons and the American Association of Trauma Specialists both recommend the wearing of FULL FACE helmets for all riders, as would anyone involved in emergency medicine. As a final word to all riders, PLEASE wear your helmets. I would much rather patch you up and send you home than wrap you up and send you to the morgue.

SrA Robert J. Cowan, USAF
Edwards AFB, CA 93523

CORRECT HOLD

I feel that when lifting a tire off or putting one on a vehicle that's jacked up, the hands should be on the *sides* of the tire, not the top and bottom as shown in the "Flat Tire" article (Aug. '81).

If the jack should slip off, so might the top hand; and the other could be crushed.

"Do it Like the Pros!" (page 26).

D. H. Waldo, USN, Ret.
San Diego, CA 92154

Good point, Waldo.

SOUTH DAKOTA'S SAFETY

The South Dakota Division of Highway Safety appreciates your efforts in informing military personnel of safe driving practices. Safety should be an important issue to everyone.

We are trying to help our state's only military base, Ellsworth Air Force Base, by providing support for their safety programs. We have provided Motorcycle Safety Instructor Training and Certification, so that an individual could then train base personnel in safe motorcycle techniques. Federal highway safety funds were also used to purchase an Intoxilyzer, a breath alcohol and analyzing instrument, which was placed on the base by the State Chemist to aid in the education and apprehension of drinking drivers. Just recently, a Seatbelt Convincer was loaned by the Division of Highway Safety, South Dakota Department of Public Safety, to Ellsworth to demonstrate the effectiveness of safety belts.

We are pleased with Ellsworth's highway safety record and will continue to cooperate with their safety officiáls in their future traffic safety efforts.

Rene Liegl, Program Manager
South Dakota Dept. of Public Safety

STAND OUT OF TRAFFIC

I read with interest your tips for getting "On the Road Again" in your July 1981 issue of DRIVER. However, one thing bothered me considerably. The young lady who developed car trouble wisely raised the hood of her car to alert other motorists of her predicament. Unfortunately, she is standing on the *left* side of it. If another driver were to pass by too close (as has tragically happened in the past) she would be a goner.

Please stress the wisdom of retreating to the *right side* of a disabled automobile.

MSgt Donald J. Bertoli, AzANG
Tucson, AZ 85734

In our zeal to publish interesting photos, we failed to practice what we preach. Even though this breakdown was on a country road, the stranded motorist should not be standing on the traffic side.

FATIGUE JACKET OK

I just wanted to let you know that I am glad you did not condemn fatigue jackets when riding motorized cycles. I ride a moped and wear my fatigue jacket and also gloves. Even though I don't go very fast, I believe that the extra layer of clothing is important when that one spill or however many spills occur.

TSgt Dennis L. Buckley, USAF
Edwards AFB, CA 93523

☆U.S. GOVERNMENT PRINTING OFFICE: 1981 783-022/12

OF Mice & Men IN THEIR AUTOMOBILES
GEORGE?
WHAT'CHA WANT?
TELL ME ABOUT THE SEAT BELTS, GEORGE?
ALL THE TIME! ALL-THE-TIME YOU'RE BUGGIN' ME TO TELL YOU ABOUT THE COTTON PICKIN' SEAT BELTS!
Y'WEAR SEAT BELTS! Y' DON'T TALK ABOUT 'EM!
AH-H-H-H, C'MON GEORGE!
WELL-L, OK. NOW YOU AND ME, BENNY, YOU AND ME AIN'T LIKE MOST DRIVERS. MOST DRIVERS NEVER BUCKLE UP... THEY JUST CLIMB IN THEIR CARS AND DRIVE AWAY...
BUT NOT US, HUH, GEORGE?
HUH? HUH?
THAT'S RIGHT! YOU AND ME IS DIFFERENT. WHEN YOU AND ME CLIMB IN A CAR...
... I GET TO UNLOCK THE DOOR, DON'T I GEORGE? 'N THEN I CLIMB IN 'N BOUNCE UP 'N DOWN ON THE SEAT 'N UNROLL THE WINDOWS 'N TURN ON THE TAPE DECK, 'N...
YOU KNOW THIS STORY BETTER'N I DO, BENNY. WHAT'CHA NEED ME T' TELL IT FOR?
'CAUSE YOU TELL IT SO GOOOD, GEORGE! 'N BEFORE WE CLICK THEM BELTS I GET TO EMPTY THE ASH TRAY, DON'T I, GEORGE?
YEAH! 'N THEN, BEFORE WE START THE CAR, WE BUCKLE-UP, RIGHT?
REET-O! BUT NOT 'TIL I HONK THE HORN 'N GIVE MY RABBIT A BON VOYAGE HUG!
!★☆! RABBIT!
... 'N AFTER WE BUCKLE UP WE CAN SHOVE OFF, KNOWIN'...
... KNOWIN' WE'VE DONE THE SAFE THING!
YEAH! YEAH! SAFE! NEATO
SIGH!
GEORGE?
WHAT'CHA WANT?
TELL ME ABOUT THE SEAT BELTS, GEORGE?